

## **PICEAS – Pacific Island Cetacean and Ecosystem Assessment Survey**

### **Weekly Report, 7 November 3 - 9, 2005**

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We started the week full of anticipation as we approached Palmyra Atoll, ready for some calmer weather, more animals, and a recreational stop on the island (that's what the brochure said!). At first, things seemed on track – sighting rates of false killer whales picked up markedly, and the acoustics team heard 'blackfish' for seven hours straight the morning of 04 November. We even enjoyed a few brief moments in Beaufort 3 seas.



Nevertheless, our luck was not to last. Rainsqualls started making more and more trouble as we headed south, and the morning we arrived at Palmyra we were greeted with 25+kts wind and 8-10ft seas. Winds and swells sadly prevented us from launching the small boat for our island visit and for biopsy sampling, so instead we surveyed around the island in search of some friendly bow-riding dolphins to photograph and biopsy from the ship. We found spinner dolphins – strategically located just at the edge of the reef where the Mac II could not go (or rather, where we could go only if we were willing to stay there permanently...). As we continued around the island and encountered several groups of bottlenose dolphins and melon-headed whales, the biopsy & photo team got a workout, as pages of “Biopsy/photo team to the bow” -- “Back to course and speed” -- “Biopsy/photo team to the bow” -- “Back to course and speed” alternated through the speakers. Through all this, we obtained numerous photos and one small bottlenose dolphin sample. The increase in marine life around Palmyra -- dolphins and seabirds everywhere -- and the scenery were a sight worth seeing, even if we could not enjoy a stop on land.

We are now heading onward, northward, windward through the NE trades, as we try to survey our remaining lines before heading in to Honolulu. We've found some Beaufort 7 the last few days, but the weather forecast is promising to bring lighter winds for our last weekend. At this point, anything under 20kts will be welcome. Check back next week to see how we fared...

## Marine Mammal Sighting Summary

110305	0638	N10:09.07	W160:07.81	78.7 nmi	5.7
	1715	N08:57.08	W160:55.77		
110405	0707	N07:55.11	W161:38.83	59.0 nmi	4.6
	1815	N06:46.12	W162:29.48		
110505	0635	N05:51.05	W162:03.71	19.6 nmi	5.2
	1414	N05:50.32	W161:58.22		
110605	0634	N07:37.13	W160:37.00	80.8 nmi	4.7
	1754	N09:11.62	W159:33.01		
110705		NO EFFORT - ROUGH SEAS			
110805	0633	N10:46.29	W158:25.70	61.2 nmi	5.3
	1703	N12:02.38	W157:30.75		
110905	0633	N13:14.34	W157:53.24	22.2 nmi	5.7
	1033	N13:39.89	W157:37.78		

CODE	SPECIES	TOT#
002	Stenella attenuata (offshore)	1
013	Stenella coeruleoalba	1
018	Tursiops truncatus	5
031	Peponocephala electra	2
033	Pseudorca crassidens	5
077	unid. dolphin	1
101	Stenella longirostris (southwestern)	2
377	unid. large delphinid	1
	TOTAL	18

## Biopsy Weekly Report (Suzanne Yin and Mark Deakos)

	Weekly Total	Cruise Total
Bryde's whales	0	1
Pilot whales	0	2
Humpback whales	0	3
Melon-headed whales	0	40
Sperm whales	0	4
False killer whales	0	18
Spotted dolphins	0	2
Spinner dolphins	0	3
Rough-toothed dolphins	0	2
Bottlenose dolphins	1	12
TOTAL	1	87

## Photo-ID Weekly Report (Chris Cutler and Beth Goodwin)

The week in photos was a successful one, in spite of the oftentimes less than favorable weather conditions. The 'southwestern' spinner dolphins, most typically seen as they rocketed away through the water with shallow leaps, nonetheless allowed us to document their species-

diagnostic triangular-shaped dorsal fins, the sub-specifically distinct black body stripe, and their behaviorally-unique namesake trait; the aerial ‘spin’.

Among the bottlenose dolphins we observed near Palmyra, several were very cooperative subjects as they swam to the ship to ‘ride the bow’ pressure wave. Close photos of these animals revealed cookie-cutter shark scars and tooth-rake scratches likely the result of antagonistic encounters with conspecifics. The school of melon-headed whales moved languidly through the water, occasionally lifting their heads to show distinctive white ‘lips’ as well as their dorsal fins. With most of these sightings, we were able to photograph individually distinctive dorsal fins on numerous animals: whether they were nicked, notched, ‘waved’, freshly scarred, or almost entirely missing.

We also had one interesting encounter with a false killer whale that had a damaged dorsal fin. It was later determined that the animal was badly emaciated when we reviewed our (distant) photos. The base of the fin was intact, but most of the fin was gone and the pinkish coloration indicated the wound had not entirely healed. One photograph clearly shows the animal’s ribcage and sunken body. The health of this animal had apparently been compromised, rendering it unable to capture an adequate amount of prey to sustain a normal, robust weight.



False killer whale with chopped off dorsal fin and evidence of emaciation, 4 Nov 2005. Photos by Beth Goodwin.

	<b>Weekly Total</b>	<b>Cruise Total</b>
Humpback whale fluke IDs	0	4
Bryde’s whale	0	4
Melon-headed whale (# groups)	1	5
False killer whales (# groups)	1	5
Pilot whales (# groups)	0	13
Striped dolphins (# groups)	0	3
Spotted dolphins (# groups)	0	4
Spinner dolphins (# groups)	2	10
Fraser’s dolphins (# groups)	0	2
Killer whales (# groups)	0	1
Risso’s dolphins (# groups)	0	1
Rough-toothed dolphins (# groups)	0	1
Bottlenose dolphins (# groups)	2	3

## Acoustics Squeakly Report (Shannon Rankin & Jen Pettis)

At the beginning of the week, our array was showing obvious signs of imminent death, but it refused to give up without a fight. With hydrophones cutting in and out, we managed to work for two more days and detected seven groups of *Pseudorca*, five unidentified dolphin schools, one group of striped dolphins, and a mixed school of spotted and spinner dolphins. Before arriving at Palmyra, we tried to squeeze in a final morning of effort, but the old gal finally gave up.

Jen and I were fortunate enough not to have to waste time playing on Palmyra, so that we could spend the rest of the day setting up our last backup array. Who needs to play on a rope swing in a tropical paradise, when you can wrestle with 500m of cable in 10 foot seas? With a healthy new array in the water, we managed a few more days of effort with seven groups of unidentified dolphins, several of which were possible *Pseudorca*. After two months of non-stop breakage, we are crossing our fingers and toes that the equipment will last us one final week...

## Seabird Blurp (Michael Force, Sophie Webb)

It was a wet and soggy week with plenty of rain—great weather for ducks! Perhaps that explains the unexpected wave of duck sightings spanning a couple of days. Surprising everyone was a female-plumaged Lesser Scaup flying around the ship for almost an hour, about 120 NM north-northwest of Palmyra Atoll. Later that same day, a couple of female-plumaged Northern Pintail settled on the stern wake, where the prop wash laid down the Beaufort 6 sea enough to resemble a prairie pothole. A couple of days later, a male Lesser Scaup buzzed the ship a few times before heading off to who-knows-where. Actually, these two species are fairly regular winter visitors to Hawaii; they just happened to miss their target. In keeping with the duck theme,

the same day the male scaup showed up, a Duck Hawk appeared and ensured that our 300-metre survey strip was a “no fly zone” for storm-petrels. This juvenile Peregrine Falcon, as they are now known, caught two storm-petrels, presumably Leach’s. It plucked and ate one while in flight, the other in relative comfort on the ship’s jackstaff. This ability to feed on the wing, as well as being able to take advantage of passing ships, presumably allows these powerful flyers to cover great distances across the open ocean. Despite hitting rock bottom a couple days (for instance three species on Monday), we averaged 13 species per day, and found an impressive 31 species this week, including single Collared and White-necked Petrels, a few Kermadec and Tahiti Petrels, a dozen or so Phoenix Petrels, a Christmas Shearwater and a South Polar Skua. Everyone’s favourite, the Mottled Petrel, so conspicuous a few weeks ago while migrating south,



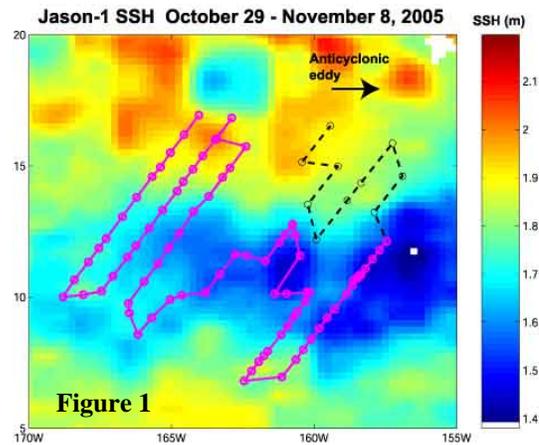
Fast-food takeout: Peregrine Falcon (*Falcon peregrinus*) with storm-petrel (*Oceanodroma* sp.). Photo: Sophie Webb

has practically disappeared—we saw only one. In the southern portion of the study area, where we found all of our Phoenix Petrels, the feeding flocks were delightfully diverse with a wide selection of *Pterodromas*. This provided a welcome change from flocks consisting primarily of Wedge-tailed Shearwaters and Sooty Terns. A bewildered adult Sooty Tern was found on deck one morning and was successfully released after regaining his (her?) composure in a cardboard box. We rarely find Sooty Terns stranded on board.

### Oceanographic Data Collections (Mindy Kelley, Lacey O’Neal and Scott Benson)

‘On with the show’ and ‘down and out’ have been the themes for this past week. The weather has been the determining factor for operations. With varying winds and seas, we have observed our surroundings from hour to hour while waiting to decide the fate of our operations. Friday and Sunday we managed, with permission from the weather gods, to conduct two full days of operations. As for the rest of the week, you can see we were not granted the same permission.

This week we traveled north away from the edge of north equatorial counter current (NECC) toward the north equatorial current (NEC) and Hawaii ridge. As we traveled north, we not only left warm sea surface temperatures (28°C to 27°C) but we also traveled through a rather interesting area (between NECC and NEC) where the thermocline came up to a very shallow 33m and dropping off at 119 meters (dark blue area in Figure 1, courtesy of Dave Foley, ERD – Thanks, Dave!). As we continued out of this dark blue patch, the thermocline began to deepen slowly, and it is currently back to approximately 100m. We expect to see one more rise in the thermocline followed by another fall along our projected trackline (dashed line) before we return to Oahu next week. Stay tuned.



Even with so few evening stations conducted this week, we managed to find a friend swimming in the dark. This week’s introduction (maybe re-acquaintance) is a graceful purple jelly (Figure 2, photo by Mindy Kelley). This jelly closely matches the description of *Pelagia noctiluca*, with color often purple or yellow. It is noted as an opportunistic predator and indeed, we observed our friend feasting on salps. *P. noctiluca* is also said to deliver a very uncomfortable sting. I think that after handling the samples, Scott may have the best words to describe our graceful jelly’s sting.

DATE RANGE	DAY	CTD	XBT	Bongo	Manta	Comments
PICEAS05 Leg4	Thursday	1	4	1	1	Winds/Seas
	Friday	2	3	1	0	
	Saturday	0	0	0	0	Palmyra
11/03 to 11/09	Sunday	2	3	1	1	
	Monday	1	4	0	0	Winds/Seas
	Tuesday	1	4	1	0	Winds/Seas
	Wednesday	1	4	0	0	Winds/Seas
	<b>Totals</b>	8	22	4	2	

### Dippers Dismay (Scott Benson, Jim Cotton and Chris Cutler)

It was a challenging week for the dip netters as we battled high winds, seas and squalls for a handful of fish. The total weekly catch of flyingfish, ten, was the lowest for the cruise and was an artifact of poor conditions combined with the cancellation of half the dipping stations. The real heartbreak this week was not getting close enough to Palmyra Atoll to sample the flyingfish that occur in that near shore environment. The good news is that we captured a juvenile four-winged flyingfish that, to my knowledge, is not represented in the master collection of 30,000+ specimens (see photo, by Jim Cotton).

In less than a week we'll be off Honolulu and we'll have a chance to catch a few inshore species. Wish us well and say a prayer to the weather gods.

Thanks again to the engineering department for fixing our floodlights and to the bridge watch for keeping us on station in these high seas.

